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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,819	03/03/2004	Munetaka Kakiuchi	249935US0X	1495

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C. IRVIN MCCLELLAND  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/790,819

Applicant(s)

KAKIUCHI ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 6/28/06.

In light of the new grounds of rejection as set forth below, the following action is non-final.

**Claim Rejections - 35 USC § 112**

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-13 and 18-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "pigment-dispersed aqueous recording liquid containing at least one pigment and a resin wherein at least one of the resin is a water-dispersible urethane based resin". The scope of the claim is confusing given that the claim recites that the recording liquid contains "a resin", i.e. one resin, and recites "at least one of the resin", i.e. more than one resin. Thus, it is not clear if the recording liquid comprises only one resin or one or more resins. In order to avoid confusion in the scope of the claim, it is suggested that "a resin" is amended to recite "resin".

**Claim Rejections - 35 USC § 102**

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3-4, 6-7, 9-16, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Nichols et al. (U.S. H2113).

The rejection is adequately as set forth in paragraph 4 of the office action mailed 4/20/06 and is incorporated here by reference.

Further, attention is drawn to example II wherein polyurethane is prepared in the absence of polyamine chain extender and water and thus, it is clear that the polyurethane of Nichols et al. would inherently possess at most 2 wt.% urea as presently claimed.

With respect to claims 11-12 and 16, it is noted that given that Nichols et al. disclose printed material printed by ejecting ink from ink jet printer onto substrate wherein the ink is identical to that presently claimed, it is clear that such printed material would inherently possess thickness of at least 20 nm, optical density of at least 2, and 20<sup>0</sup> gloss value of at least 60 as required in present claims 11 and 16 as well as arithmetic average roughness of at least 0.04 as required in present claim 12.

6. Claims 1-6, 9-16, and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1167466.

The rejection is adequately as set forth in paragraph 5 of the office action mailed 4/20/06 and is incorporated here by reference.

Additionally, attention is called to paragraph 82 of EP 1167466 which discloses polyurethane that is obtained not only in the absence of polyamine chain extender but where no water is present during polyurethane preparation and thus, it is clear that the polyurethane of EP 1167466 would inherently possess at most 2 wt.% urea as presently claimed.

With respect to claims 11-12 and 16, it is noted that given that EP 1167466 discloses printed material printed by ejecting ink from ink jet printer onto substrate wherein the ink is identical to that presently claimed, it is clear that such printed material would inherently possess thickness of at least 20 nm, optical density of at least 2, and 20<sup>0</sup> gloss value of at least 60 as required in present claims 11 and 16 as well as arithmetic average roughness of at least 0.04 as required in present claim 12.

7. Claims 1, 6, 9-10, 12, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Pearlstine et al. (U.S. 2004/0092622).

Pearlstine et al. disclose pigment dispersed aqueous ink jet ink comprising polyurethane dispersion and pigment possessing dispersion average particle size of 5-300 nm wherein the ratio of pigment to polyurethane is less than about 1.5. It is disclosed that the polyurethane optionally contains urea groups. There is also disclosed ink jet printing method wherein the ink is printed onto substrate such as photoglossy paper in order to form printed material. Attention is drawn to example 4 which discloses ink comprising 5% pigment with dispersed average particle size of 92 nm and 4% water-dispersible polyurethane wherein it is calculated that the ratio of polyurethane to pigment is 0.8 (paragraphs 3, 7-8, 13, 20, 22-24, 68, 74, and 90). Given that Pearlstine et al.

disclose printed material identical to that presently claimed it is clear that the printed material would inherently possess arithmetic average roughness of at least 0.04.

Attention is called to example 6 of Pearlstine et al. that discloses ratio of polyurethane of pigment of 0.8 (4/5). It is also noted that the polyurethane dispersion utilized, i.e. PUD 4 (paragraphs 137-142), utilizes polyurethane prepared without polyamine chain extender. While a solution of 5% dimethyl-2-propanol amine in water is added during the process of preparing the polyurethane dispersion, it is significant to note that the water is added after the polyurethane has been formed and that the solution is added only to neutralize the already prepared polyurethane when there is little or no polyisocyanate remaining (paragraph 141). Thus, it is clear that the polyurethane of Pearlstine et al. would inherently possess at most 2 wt.% urea as presently claimed.

In light of the above, it is clear that Pearlstine et al. anticipate the present claims.

**Claim Rejections - 35 USC § 103**

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H 2113) in view of Suzuki et al. (U.S. 6,245,832).

The rejection is adequately as set forth in paragraph 11 of the office action mailed 4/20/06 and is incorporated here by reference.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H 2113) in view of EP 1167466.

The rejection is adequately as set forth in paragraph 12 of the office action mailed 4/20/06 and is incorporated here by reference.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pearlstine et al. (U.S.2004/0092622) in view of EP 1167466.

The disclosure with respect to Pearlstine et al. in paragraph 7 above is incorporated here by reference.

The difference between Pearlstine et al. and the present claimed invention is the requirement in the present claim of the use of additional resin.

EP 1167466, which is drawn to ink jet ink, disclose the use of anionic water-soluble polymer having acid value not less than 150 in order to improve the storage stability, waterfastness, and rubbing resistance of the ink (paragraph 41).

In light of the motivation for using additional resin disclosed by EP 1167466 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such resin in the ink of Pearlstine et al. in order to produce ink with improved the storage stability, waterfastness, and rubbing resistance, and thereby arrive at the claimed invention.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H2113) in view of EP 1219689.

The rejection is adequately as set forth in paragraph 13 of the office action mailed 4/20/06 and is incorporated here by reference.

13. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1167466 in view of EP 1219689.

The rejection is adequately as set forth in paragraph 14 of the office action mailed 4/20/06 and is incorporated here by reference.

14. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H 2113) or EP 1167466 either of which in view of Nagai et al. (U.S. 5,879,439) and Uchiyama et al. (U.S. 5,748,208).

The disclosures with respect to Nichols et al. and EP 1167466 in paragraphs 5 and 6 above are incorporated here by reference.

The difference between Nichols et al. or EP 1167466 and the present claimed invention is the requirement in the claims of the amount of ink deposited onto substrate.

Nagai et al., which is drawn to ink jet ink, disclose that the deposition amount of ink on paper is  $2-25 \text{ g/m}^2$  or  $1.29 - 16.1 \text{ mg/in}^2$  so that the paper is prevented from curling or waving (col.23, lines 2-12). Although Nagai et al. disclose the use of paper having Stockigt size degree of 3 seconds or more, it is well known, as found in Uchiyama et al. (col.7, lines 51-53), that the Stockigt size degree of recording paper commonly used in ink jet recording is 5 seconds or paper.



In light of the motivation for using deposition amount of ink of 1.29 – 16.1 mg/in<sup>2</sup> disclosed by Nagai et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use deposition amount of ink, including that presently claimed, in either Nichols et al. or EP 1167466 in order to produce printed material that does not curl or wave, and thereby arrive at the claimed invention.

#### **Response to Arguments**

15. Applicants' arguments regarding WO 00/52106, Valentini et al. (U.S. 2003/0184629), and Shinozuka et al. (U.S. 5,750,592) have been considered but they are moot in view of the discontinuation of the use of these references against the present claims.

16. Applicants' arguments filed 6/28/06 have been fully considered but, with the exception of arguments relating to WO 00/52106, Valentini et al., and Shinozuka et al., they are not persuasive.

Specifically, applicants argue that Nichols et al. and EP 1167466 are not relevant references against the present claims given that there is no disclosure in either reference regarding the urea content of the polyurethane.

With respect to Nichols, et al., attention is drawn to example II wherein polyurethane is prepared in the absence of polyamine chain extender and water. Given that this meets the criteria set forth in the present specification (page 18, lines 2-11) for producing polyurethane with urea content of at most 2 wt.%, it is the examiner's position that Nichols et al. remains a relevant reference against the present claims.

With respect to EP 1167466, applicants argue that although the polyurethane may not be prepared using polyamine chain extender, urea may be present in the absence of polyamine chain extender such as when polyurethane based resin is not prepared under substantially anhydrous conditions.

However, attention is called to paragraph 82 of EP 1167466 which discloses polyurethane that is obtained not only in the absence of polyamine but where no water is present during polyurethane preparation.

In light of the above, it is the examiner's position that EP 1167466 remains a relevant reference against the present claims.

Applicants argue that Pearlstine is not a relevant reference against the present claims given that all the exemplified polyurethane of Pearlstine et al. have been produced under conditions that would not limit the urea part content and all the examples of Pearlstine et al. contain pigment and polyurethane in amount outside the scope of the present claims.

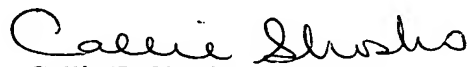
However, attention is called to example 6 of Pearlstine et al. that discloses ratio of polyurethane of pigment of 0.8 (4/5). It is also noted that the polyurethane dispersion utilized, i.e. PUD 4 (paragraphs 137-142), utilizes polyurethane prepared without polyamine chain extender or water. While a solution of 5% dimethyl-2-propanol amine in water is added during the process of preparing the polyurethane dispersion, it is significant to note that the water is added after the polyurethane has been formed and that the solution is added only to neutralize the already prepared polyurethane when there is little or no polyisocyanate remaining (paragraph 141).

In light of the above, it is the examiner's position that Pearlstine et al. remains a relevant reference against the present claims.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Callie E. Shosho  
Primary Examiner  
Art Unit 1714